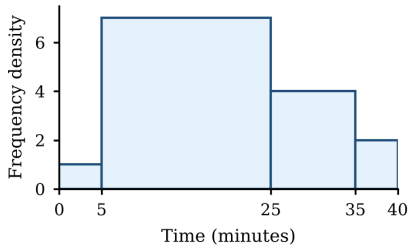
Day 129 **A Level Maths: B Tier 10-a-day**

1 Solve $-4 < -4x + 3 \leq 7$.

2 A has position vector $\begin{pmatrix} -2 \\ -4 \\ 4 \end{pmatrix}$ and B has position vector $\begin{pmatrix} -17 \\ 11 \\ -1 \end{pmatrix}$.
The point P lies on AB with AP : PB = 2 : 3.
Find the position vector of P.

3 A car of mass 800 kg moves along a horizontal road. The engine works at a constant rate of 30 kW. The resistance to motion is constant at 400 N.
Find the acceleration when the speed is 10 m s^{-1}.

4 The histogram shows the times taken by a group of people to complete a task.
Estimate the number of people who took between 25 and 38 minutes.



5 A geometric series has second term 8 and fifth term 1.
Find (a) the common ratio, (b) the first term, (c) the sum to infinity.

Day 129	A Level Maths: B Tier 10-a-day
6 The mass X g of a flour bag is normal with s.d. 6. Given P(X < 511.8) = 0.975, find the mean (3 s.f.).	
7 A stone is projected horizontally at 176.4 m s^{-1} from a point high above the ground. Take g = 9.8 m s^{-2}. Find the speed and the direction of motion 24 s later, to 1 d.p. below the horizontal.	
8 Solve $4 \sin^2 x + 3 \cos x - 4 = 0$ for $0 \leq x \leq 360°$, giving answers to 1 d.p. where necessary.	
9 A is the point (7, 5) and B is the point (3, 7). Find the perpendicular bisector of AB as ax + by + c = 0, with integer a, b, c.	
10 Solve $5^x > 326$, giving your answer to 3 s.f.	